

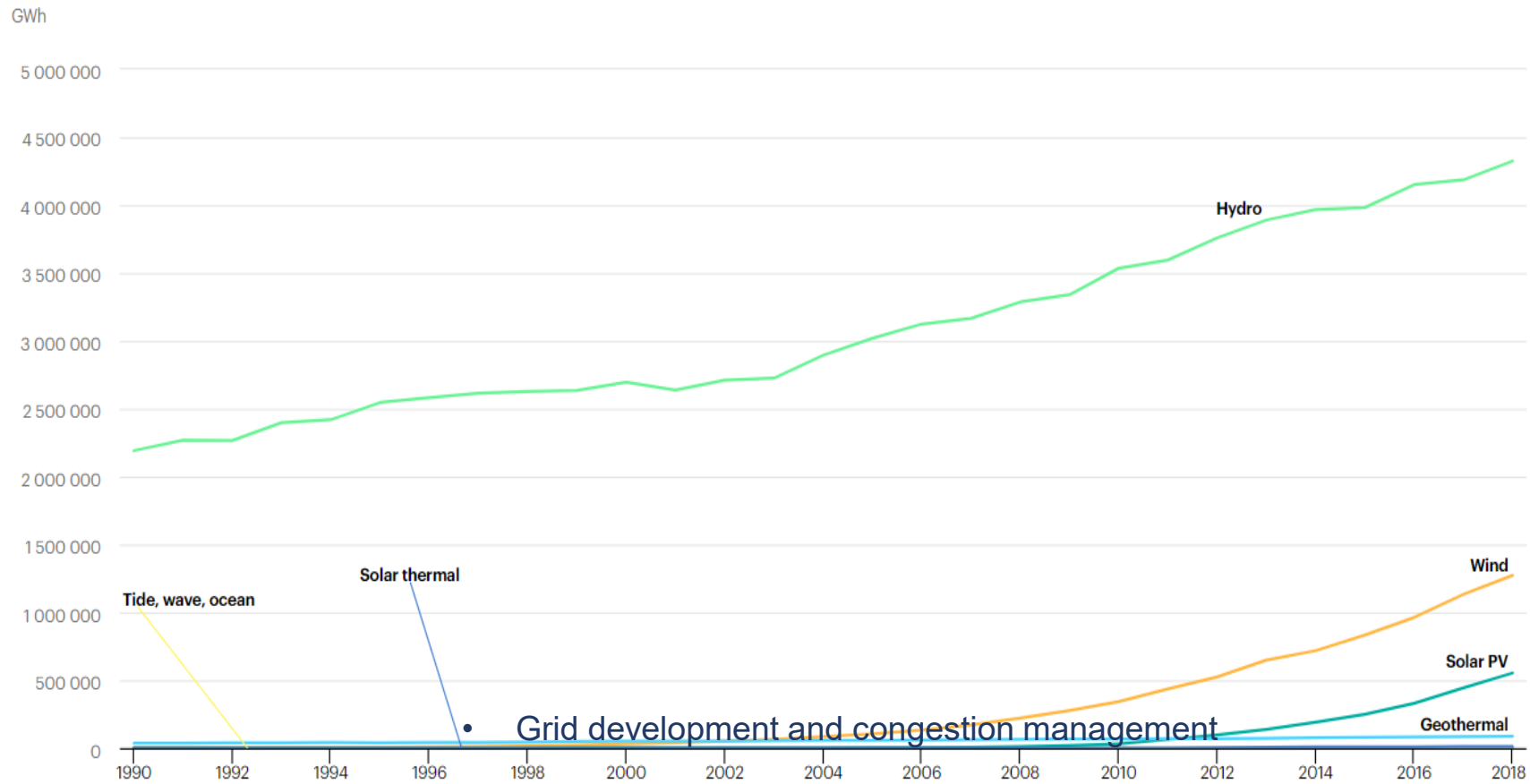
# Renewable energy and electricity prices: A panel approach

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• Grid development and congestion management

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● Geothermal ● Solar thermal ● Hydro ● Solar PV ● Tide, wave, ocean ● Wind

Source: International Energy Agency, 2018

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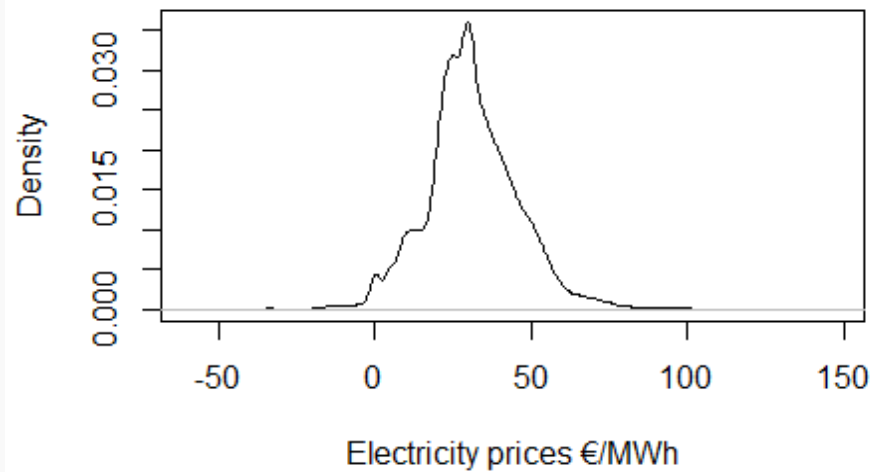


## What do we know so far?

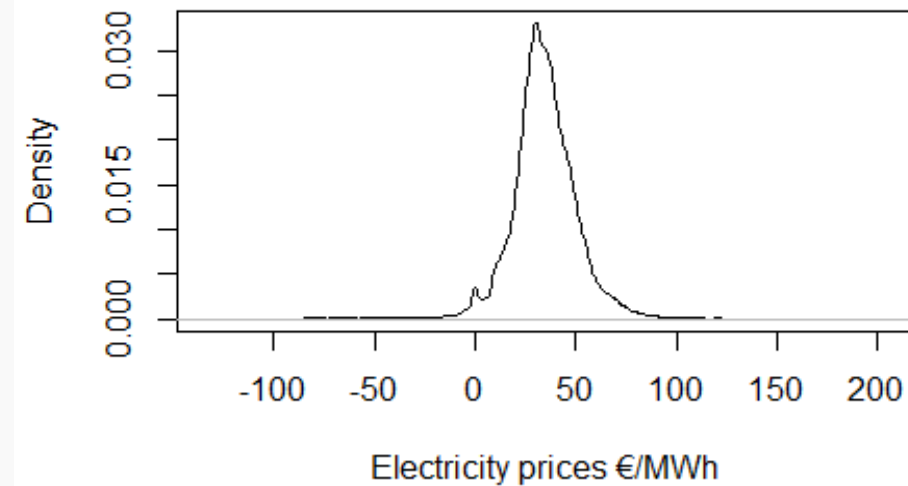
- Renewable sources reduce day-ahead electricity prices
- Renewable sources increase electricity price volatility
- Electricity price spikes

What about the effect of renewable sources on the electricity prices distribution?

**Electricity price distribution in Denmark 1**



**Electricity prices in Germany**



## Previous research

- Daily average prices
- Time series analysis
- Investigating mainly the median of the price distribution

## Our challenge

- Hourly data
- Panel setting
- Investigating the effect of renewables on the whole electricity prices distribution

## Benefits

- Considering the disproportionate hourly effect
- Getting important information regarding the effect of each hour on electricity prices
- Verifying previous findings in a different setting

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## Data

- Data for Denmark, Germany, Norway and Sweden
- Day-ahead prices
- Forecasted consumption, wind and solar power
- Day-ahead transmission flows

## Methodology

- Panel Regression with fixed effects
- Machado and Silva (2019) Quantiles via moments

## What do we want to investigate?

Generally:

- Verifying the merit-order effect in a different setting
- Is there a different effect of renewable sources at high/low electricity prices?

Denmark:

- Does Danish wind production have a distributional effect on electricity prices in Norway and Sweden?

Germany:

- Did the split with Austria have any effect on renewable generation and electricity prices distribution?

**Thank you for your attention!**

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